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Goddard Space Flight Center

Inside Wallops

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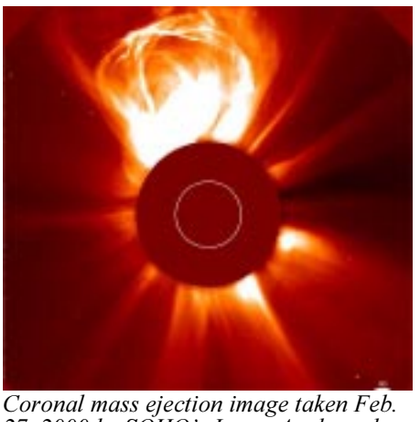
SOHO Sees Through the Sun to Find Stormy Regions on the Other Side

A week's advance warning of potential bad weather in space is now possible thanks to the Solar and Heliospheric Observatory (SOHO) spacecraft. With a technique that uses ripples on the Sun's visible surface to probe its interior, SOHO scientists have, for the first time, imaged solar storm regions on the far side of the Sun, the side facing away from the Earth.

Like the unanticipated arrival of hurricanes before the advent of weather satellites, a group of previously hidden solar storm regions can rotate suddenly into view as the Sun turns, blazing away with explosive eruptions. The new technique, which uses the Michelson Doppler Imager (MDI) instrument on SOHO, gives a warning by creating a window to the far side of the Sun.



Coronal mass ejection image taken Feb. 27, 2000 by SOHO's Large Angle and Spectrometric Coronagraph instrument.

Storm areas on the Sun are much larger than the Earth and consist of strong magnetic fields on the Sun's surface. Active regions produce explosions, called flares, and eruptions of plasma (hot, electrically charged gas), called coronal mass ejections. The radiation and plasma from these events sweep past the Earth, sometimes affecting spacecraft, power systems and disrupting radio communications. Understanding and forecasting solar eruptions and their consequences is a relatively new science called space weather.

For more than 100 years, scientists have been aware that sunspots are often the scene of flares and other eruptions. Now they watch the Sun more closely than ever, because modern systems are much more vulnerable to solar disturbances than old technology. The experts can still be taken by surprise because the Sun rotates, bringing the effects of hidden active regions to bear on Earth. With a far-side preview of sunspots, nasty surprises for the space weather experts may now be avoidable.

Ripples on the Sun's surface used to image the interior are caused by sound waves reverberating through the Sun. Analysis of solar sound waves is the science of helioseismology. It opened the Sun's gaseous interior to investigation in much the same way as seismologists learned to explore the Earth's rocky interior with earthquake waves.

The MDI instrument is the most elaborate of three helioseismic instruments on SOHO. It measures rhythmic motions at a million points across the Sun's visible surface.

Computers can interpret the motions in terms of sound waves travelling through the Sun. The waves are affected by the various layers of gas and different motions they encounter. The MDI has already revealed many unknown features of the solar interior, including hidden jet streams circling the Sun's poles.

The technique of helioseismic holography used examines a wide ring of sound waves that emanate from a small region on the far side and reach the near side by rebounding internally from the solar surface. An active region reveals itself because it possesses very strong magnetic fields that speed up the sound waves. Waves that pass through an active region have a round-trip travel time about 12 seconds shorter than the average of six hours. The difference becomes evident when sound waves shuttling back and forth get out of step with one another.

Images and additional information are available at: *http://pao.gsfc.nasa.gov/gsfc/spacesci/sunearth/sunearth.htm#soho*

Wallops Fire Chief, Joe Conaty, (left), talks to Nealy Nock's pre-k class from Kegotank Elementary School. Conaty and members of the Wallops Fire Department did a demonstration of the Mobile Aircraft Rescue Fire Fighting Trainer from the Commonwealth of Virginia for the students on March 9.

PAO Digital Photo.

Wallops Shorts…….

Balloon Launch

A NASA scientific balloon was successfully launched from Kiruna, Sweden on March 3. The four million cubic foot balloon carried an upper atmosphere research experiment. Dr. William Brune of Penn State University was the principal investigator. Total float time was 3 hours, 52 minutes.

Goddard Honor Awards

Congratulations to the following employees who received a 1999 Goddard Space Flight Center Honor Award during a ceremony held at Greenbelt on Feb. 28. Felipe Arroyo — Excellence in Outreach, Wallops Saturday Youth Program — Group Award, Learjet Response Crash Team and NASA C-130 Aircrew/DynCorp — Emergency Response Award, Lisa Ward — Secretarial Excellence Award.

Safety Office Acting Chief

Craig L. Purdy, Suborbital and Special Orbital Projects, has been appointed Acting Chief of the Safety Office (Code 803). Purdy will serve in this position until a permanent placement is named.

Wallops on the Road

Greg Frostrom, GHG, spoke to Pocomoke Elementary School first grade students on March 8.

On March 9, Brian Hall, PRC-Arcata Assoc., spoke to Chincoteague High School juniors.

Irish-American Heritage Month

by Proclamation dated March 1, 2000
William J. Clinton, President of the United States of America

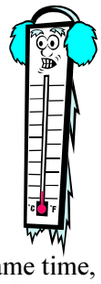
More than two centuries ago, our founders envisioned a new Nation, a land free from tyranny and filled with opportunity, prosperity, and liberty for all. Many Irish people, faced with severe hardship in their homeland, embraced the dream of a more promising future and left behind Ireland's shores, their families, and their friends for a new beginning in America. Each year during the month of March, we celebrate these courageous men and women of Ireland and remember with pride their many contributions to our Nation.

This month, as we celebrate Saint Patrick's Day and our shared heritage with Ireland, we remember as well our common love of liberty, commitment to progress, and quest for lasting peace, and we look toward to a future as proud as our past.

Weather Summary

by Bob Steiner, Meteorologist

Some folks love snow, ice and cold, and the weather during January finally began to feel like winter. Along comes February and spoils it all with temperatures almost four degrees warmer than normal.



During February, on 18 days the recorded daytime as well as nighttime temperatures were above normal. At the same time, temperatures recorded on nine days and nights were cooler than normal.

There were only two days during February when daytime and nighttime temperatures matched the climatological norm. Nighttime temperatures were at or below 32 degrees on 18 nights. For 14 days, temperatures reached 50 degrees or above. On four of those days the temperature was 60 degrees or above and actually climbed into the 70's. A new record high reading of 73 degrees was set on Feb. 25. The previous record high was 70 degrees set in 1985. The all time record high for February of 79 degrees was recorded Feb. 27, 1997.

Total measurable precipitation for February was only 1.8 inches, which is 1.25 inches below normal. Measurable snowfall was 2.3 inches below normal with only 1.1 inches recorded on Feb. 12.

Some folks love warm breezes and rain. For them April won't be here soon enough. The month starts out with daytime highs in the upper 50's with temperatures increasing to the mid-60's by the end of the month. Don't be surprised if the "snow babies" have to suffer through a few days with temperatures reaching into the 70's and 80's, particularly during the last part of April. The all time record high for April is 93 degrees set on April 26, 1990. Evenings become more enjoyable with temperatures falling below 40 degrees usually only on two nights. The "spring bunnies" might be mindful that temperatures have been known to drop below freezing during the early part of April. Perhaps they'd better keep the sweaters and gloves out for awhile. The all time low during April was a reading of 24 degrees on April 1, 1969. A late freeze is not uncommon even as late as the last week of April.

Typically, the Eastern Shore experiences the driest period in April, with only 10 days of measurable precipitation for an average totaling only 2.65 inches.

Now is the time to begin planning for spring garden planting and getting the summer toys and machinery ready. Just be aware that Jack Frost likes to have a last fling usually during April.

This space reserved for mailing labels.

Report Animal Sightings

Recently a red fox was discovered on the Main Base during daylight hours. It was later determined to have what animal control representatives refer to as mange. Mange is a contagious skin disease in animals, and occasionally humans, caused by parasitic mites. Due to warmer temperatures and an increase in animal activity, it is more likely to spread this time of the year. Once contacted the animal will develop a weakened immune system and are susceptible to other viruses

Wallops employees are requested to be on the lookout for fox, raccoons or cats on the Main Base or Wallops Island that are acting strange and appear to be loosing their fur. This is especially true when you see a predominately nocturnal animal in the middle of the day. Immediately report the sighting to security, x2535, and try to keep track of the animal so Animal Control is able to locate it.

Introductory Overhead Crane Operator Training

March 22 & 23
8:30 a.m. to 4:30 p.m.
Building N-159, Room E-208

This course satisfies the requirements of the NASA Safety Standard for Lifting Devices and Equipment, NSS/GO-1740.9B, for the operation of electric, manual or air driven overhead cranes and hoists at Wallops.

Civil service and contractor personnel who require an overhead crane operator license are encouraged to attend. For information or to enroll, contact Bill Hargrove, x1797.

Spring Into Aerobics! —— Session Starts Now!

Think you're too late? You can always join us!

*Evening Classes: 5 - 6 p.m., Monday & Wednesday**

Hour classes on gym floor include aerobics and toning. *4:40 - 5:10 p.m., Friday (1/2- hour class of aerobics)

NOTICE: Lunchtime sessions for this session have been cancelled due to lack of participation.

For more information check out the Aerobics Club web site: http://www.wff.nasa.gov/~ccsoft/wallops_aerobics/wac.htm

ISO Audit News

by Regena Haugh

Hank Ingber, the DNV ISO Auditor, has reported that Goddard Space Flight Center passed the first Surveillance Audit with the following results: seven minor non-conformances and nine observations. No major non-conformances were found. Ingber expressed satisfaction in the good progress the Center had made in maturing in the ISO disciplines and the good attitudes of the people.

Safety Message From the Administrator

The NASA Safety Reporting System

Lives can be, and have been, lost in our reach for the stars. In 1986, the world was horrified to watch the Space Shuttle Challenger disintegrate in a ball of flame shortly after takeoff. The NASA Safety Reporting System (NSRS) was established as one element of NASA's response to that disaster.

The NSRS is NASA's only Agency-level, voluntary, responsive and confidential safety reporting system. This reporting system provides a valuable option for timely notification of potential risks.

A Reporter should initially notify their supervisor of any potential safety problems and use the standard safety channels available at your work sites. If this has been done and the Reporter still has a concern with the safety of personnel, a mission, or an operation then the reporting of that potential or actual problem should become highest priority. The NSRS reporting process should be used as soon as possible.

NASA employees, contractor or crewmember may mail an NSRS reporting form to the NSRS Office. The Reporting Form is on the NSRS Web site, http://www.hq.nasa.gov/nsrs or is displayed at the NASA Centers. Simply fill out the form, enclose it in an envelope, seal and mail.

For additional information on this safety topic, go to: <http://pao.gsfc.nasa.gov/gsfc/gnews/031000/031000.htm#health>

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